

4.7 CRITERIA USED FOR TRANSMISSION LINE ROUTE AND DESIGN

4.7.1 Transmission Line Route

As described in Section 2.2.3.10, ‘Project Transmission Feeder Lines’, one of the principal factors in selecting the proposed site for the Wild Horse Wind Power Project was access to suitable transmission lines. There are several sets of high voltage power lines within 8 miles of the Project site including 2 sets of Bonneville Power Administration (BPA) transmission lines and 1 set of Puget Sound Energy (PSE) transmission lines. The Project Area Overview in Exhibit 1-A and the Project Site Layout in Exhibit 1-B illustrate the routes of the Project’s feeder lines indicated as the ‘BPA feeder line’ and the ‘PSE feeder line’ respectively.

Power from the Project will be fed from the on-site step-up substation(s) through the feeder line(s) to the interconnection substation(s). The proposed BPA and PSE interconnection substations are under review by BPA and PSE through formal System Impact Study (SIS) and Facility Study (FS) processes defined under their respective OATTs (Open Access Transmission Tariffs). In order to be interconnected to either the BPA or PSE grids, the Project will require an interconnection and transmission agreement that complies with FERC (Federal Energy Regulatory Commission) and NERC (National Electric Reliability Council) standards. This ensures the safe and reliable delivery of power from the Project to the grid.

The feeder line is a 230 kV class design and will consist of a wood frame H-pole configuration roughly 60 feet tall, with a 40 foot long top cross arm and with spans of approximately 500 to 700 feet between pole structures. Section 2.2.3.10, ‘Project Transmission Feeder Lines’ describes the construction of the Project’s feeder lines in detail. The feeder lines will be constructed along a 150 foot wide right of way easement secured for the Project. An overhead (as opposed to underground) line design was selected primarily for safety, given that, at high voltages, underground facilities present safety concerns and are extremely costly. Very few areas of the world, other than large, congested cities (such as New York City) use underground 230 kV or higher voltage lines. Line work and line inspection at this voltage level is best performed at a substantial distance which is not possible for underground lines. Because the feeder lines will be located on property secured through an easement, and not owned by the Project, underground lines could present an additional digging safety hazard.

The Applicant has designed a transmission feeder line route that provides the best combination of safety, environmental protection, site access, economic cost, willing landowners, and appropriate zoning. In evaluating alternative routes, a primary consideration involves the willingness of underlying landowners to participate in the Project. Such participation is difficult to estimate without directly contacting the affected landowners, which is not a practical approach for analyzing hypothetical alternatives.

Factors that were considered in the siting of the transmission line route included:

- Safety
- Available access across willing landowners' properties
- Proximity and potential impacts of line route to residences
- Preservation of areas of cultural and historical significance
- Environmental impact and protection of wetlands and wildlife habitat
- Overall construction impact
- EMF (Electro Magnetic Fields)

Safety

The feeder lines are not routed alongside any existing power lines where line sway and fall-over could present a safety or system reliability problem. The feeder lines are also set back more than ¼ to the nearest residence and are not near any public parks where people might fly kites.

Available access across willing landowners' properties

Applicant has met with all of the landowners across whose land the transmission lines will be routed and has secured the required right of way easements to develop and build the lines. Copies of the memoranda of easements options that Applicant has negotiated with pertinent landowners are included as Exhibit 30-A.

Proximity and potential impacts of line route to residences

The feeder lines traverse open range land, which are not near any densely populated areas and the lines are located well away from any residences. For the PSE feeder line, the nearest residence is approximately ¼ mile away and for the BPA feeder line, the nearest residence is more than ½ mile away with the next nearest residence more than 1 ½ miles away. Exhibit 15-A, 'Residences in Project Vicinity Map' illustrates the location of both feeder lines as well as residences within 1 mile.

Preservation of areas of cultural and historical significance

Applicant has commissioned cultural resource surveys of the transmission line routes and has designed the routes to ensure that the lines will not disturb any areas of cultural or historical significance. Results of these studies are presented in Section 3.14, 'Cultural Resources'.

Protection of wetlands and wildlife habitat

Applicant's biologists have performed an extensive study of the transmission line routes (see Section 3.4 and Exhibit 12) to ensure that the lines are not disturbing any wetlands or areas with any threatened or endangered species. The feeder lines are routed mainly along ridge lines and not along drainages or canyons. The PSE feeder line does not impact any wetlands. The BPA feeder line crosses Parke Creek, however, the pole structures will be set back at least 200 feet from the stream bank and construction activities will not require the use of any heavy equipment in the streambed. Applicant has visited the Parke Creek crossing with Washington Department of Fish and Wildlife (WDFW) who have confirmed that the crossing would not have an impact on fisheries or

require a hydraulic permit as documented in Exhibit 11, 'WDFW Hydraulic Permit Waiver Letter'.

Overall construction impact

All feeder line poles will be constructed on private property under right of way control by Applicant and as such, there will be no poles in public right of way areas and the impacts to the public are mitigated significantly compared to power lines constructed along roadsides, etc.

In general, transmission feeder lines should be located on relatively flat land where possible to avoid potential erosion problems with having construction trails along steep slopes. The routes should avoid environmentally sensitive areas such as major archeological resources and potential or known wetlands and should avoid possible impacts to endangered wildlife species. Feeder line routes should have sufficient access to allow for the safe delivery and construction of the pole structures and lines. Where practical, the feeder lines can parallel existing roads to facilitate access and minimize ground disturbance impacts, and can run along property lines to avoid segmentation of landowners' property. Because individual easements must be negotiated, it is typically most efficient to negotiate with a few landowners who control large parcels of land.

The feeder line routes should minimize the overall route length and number of angles or "corners" by building in straight lines where possible. This reduces the number of corner structures which require guy-wires and ground anchors and the resulting amount of temporary and permanent environmental impacts associated with construction is therefore also reduced. Minimizing the number of angles reduces the number of guy-wires and ground anchors required to support transmission towers.

EMF

As the nearest residence is more than ¼ mile away, EMF (Electro Magnetic Field) impacts are expected to be negligible for the feeder lines as detailed in Section 3.16.1.2, 'EMF' under 'Health and Safety'.

4.7.2 Transmission Line Design

The transmission line structures and conductors, along with the guys and anchors, will be designed together as a structural system that safely supports conductor tensions and all anticipated environmental loads. The transmission line design will comply in all respects with the current edition of the National Electrical Safety Code (NESC), also known as American National Standards Institute C2. The current edition is NESC-2002 Edition (ANSI C2-2002), and this standard is revised approximately every three years.